

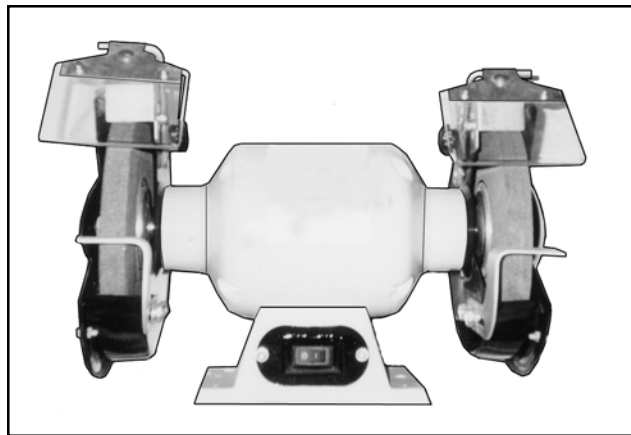
**CENTRAL MACHINERY**

®

# 6" BENCH GRINDER

**Model 90003**

## ASSEMBLY AND OPERATING INSTRUCTIONS



Distributed Exclusively by

**HARBOR FREIGHT  
TOOLS**

®

3491 Mission Oaks Blvd., Camarillo, CA 93011  
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**For technical questions, please call 1-800-444-3353.**

**PRODUCT SPECIFICATIONS**



<b>Item</b>	<b>Description</b>
Electrical Requirements	120 V / 60 Hz / 1/2 HP / Single Phase / 7.2 Peak Amps. 3450 Maximum RPM / 6 Ft. Power Cord.
Construction	Cast Iron Base / Steel Wheel Covers. Steel Motor Housing.
Tool Dimensions	11-1/2" H x 8-1/2" W x 15-1/4" L.
Tool Base Size	7-1/2" L x 5-1/2" W x 3-1/4" Deep.
Base Mounting Holes	11/32" Diameter.
Weight	25.5 Pounds

**SAVE THIS MANUAL**

You will need this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures, parts list and assembly diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep this manual and invoice in a safe and dry place for future reference.

**GENERAL SAFETY RULES**

 **WARNING!**

**READ AND UNDERSTAND ALL INSTRUCTIONS**  
Failure to follow all instructions listed below may result in electric shock, fire, and/or serious injury.  
**SAVE THESE INSTRUCTIONS**

**WORK AREA**

1. **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.

3. **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control. Protect others in the work area from debris such as chips and sparks. Provide barriers or shields as needed.

### ELECTRICAL SAFETY

4. **Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adapter plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.** If the tools should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.
5. **Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double insulation  eliminates the need for the three wire grounded power cord and grounded power supply system.
6. **Avoid body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators.** There is an increased risk of electric shock if your body is grounded.
7. **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
8. **Do not abuse the Power Cord. Never use the Power Cord to carry the tools or pull the Plug from an outlet. Keep the Power Cord away from heat, oil, sharp edges, or moving parts. Replace damaged Power Cords immediately.** Damaged Power Cords increase the risk of electric shock.
9. **When operating a power tool outside, use an outdoor extension cord marked “W-A” or “W”.** These extension cords are rated for outdoor use, and reduce the risk of electric shock.

### PERSONAL SAFETY

10. **Stay alert. Watch what you are doing, and use common sense when operating a power tool. Do not use a power tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.

11. **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.
12. **Avoid accidental starting. Be sure the Power Switch is off before plugging in.** Carrying power tools with your finger on the Power Switch, or plugging in power tools with the Power Switch on, invites accidents.
13. **Remove adjusting keys or wrenches before turning the power tool on.** A wrench or a key that is left attached to a rotating part of the power tool may result in personal injury.
14. **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the power tool in unexpected situations.
15. **Use safety equipment. Always wear eye protection.** Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

#### TOOL USE AND CARE


16. **Use clamps (not included) or other practical ways to secure and support the workpiece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
17. **Do not force the tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
18. **Do not use the power tool if the Power Switch does not turn it on or off.** Any tool that cannot be controlled with the Power Switch is dangerous and must be replaced.
19. **Disconnect the Power Cord Plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce the risk of starting the tool accidentally.
20. **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
21. **Maintain tools with care. Keep cutting tools sharp and clean.** Properly maintained tools with a sharp cutting edge are less likely to bind and are easier to control. Do not use a damaged tool. Tag damaged tools “Do not use” until repaired.

22. **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.
23. **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool may become hazardous when used on another tool.




### SERVICE

24. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
25. **When servicing a tool, use only identical replacement parts. Follow instructions in the “*Inspection, Maintenance, And Cleaning*” section of this manual.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of electric shock or injury.

### SPECIFIC SAFETY RULES

1. **Maintain a safe working environment.** Keep the work area well lit. Make sure there is adequate surrounding workspace. Always keep the work area free of obstructions, grease, oil, trash, and other debris. Do not use the Bench Grinder in areas near flammable chemicals, dusts, and vapors.
2. **Maintain labels and nameplates on the Bench Grinder.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
3.  **WARNING!** To avoid serious personal injury and/or property damage, always use Grinding Wheels (part #64) that are rated at 3450 RPM or greater on this particular Bench Grinder.
4. **Replace a cracked, broken, or excessively worn Grinding Wheel (part #64) immediately. Use only the flanges furnished with the Bench Grinder. Do not overtighten the wheel nut.**
5. **Always wear a safety impact full face shield, hearing protection, and heavy duty work gloves when using this product.** A safety impact full face shield, hearing protection, and heavy duty work gloves are available from Harbor Freight Tools.
6. **Keep all guards in place and working properly.**

7. **Always maintain a 1/16" distance or less between the Grinding Wheels (part #64) and Left and Right Tool Rests (parts #28, #32) as the diameter of the Grinding Wheels decrease with use.**
8. **To avoid accidental electrical shock, do not allow the Power Switch (part #3) to become wet.** Do not touch the Power Switch with wet hands.
9. **When using the Bench Grinder, always maintain a firm grip on the object being ground with both hands.**
10. **To avoid accidental burns use caution when handling an object that is being ground.** Allow sufficient time for the object to completely cool before handling.
11. **Always remove all adjusting keys and wrenches from the Bench Grinder before starting.**
12. **Do not pull or carry the Bench Grinder by its Power Cord (part #4), or pull the Cord around sharp corners or edges.** Do not unplug the Bench Grinder by pulling on the Cord. Keep the Cord away from heated surfaces.
13. **Do not force the tool.** This Bench Grinder will do the work better and safer at the speed and capacity for which it is designed.
14. **Keep fingers and hands as far away as possible from the rotating Grinding Wheels (part #64).**
15. **Check for damaged parts.** Before using this product, carefully check that it will operate properly and perform its intended function. Check for damaged parts and any other conditions that may affect the safe operation of this product. Replace or repair damaged or worn parts immediately.
16. **Replacement parts and accessories.** When servicing, use only identical replacement parts. Only use accessories intended for use with this product.
17. **Use the right product for the right job.** There are certain applications for which this product was designed. Do not use small equipment, tools, or attachments to do the work of larger industrial equipment, tools, or attachments. Do not use this product for a purpose for which it was not intended.
18. **Stay alert. Watch what you are doing at all times.** Use common sense. Do not use this product when you are tired or distracted from the job at hand.
19. **Do not operate this product when fatigued or under the influence of alcohol or drugs.**

22. **Always turn off the Bench Grinder and unplug it from its electrical outlet before changing accessories or performing any inspection, maintenance, or cleaning procedures.**
23.  **WARNING!** The warnings and cautions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied the the operator.
24.  **WARNING!** Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are: lead from lead-based paints, crystalline silica from bricks and cement and other masonry products, arsenic and chromium from chemically treated lumber. Your risk from these exposures varies depending on how often you do this type of work. To reduce your exposure to these chemicals work in a well ventilated area, and work with approved safety equipment such as those dust masks that are specially designed to filter out microscopic particles. *(California Health & Safety Code 25249.5 et seq.)*
25.  **WARNING!** People with pacemakers should consult their physician(s) before using this product. Operation of electrical equipment in close proximity to a heart pacemaker could cause interference or failure of the pacemaker.

## GROUNDING

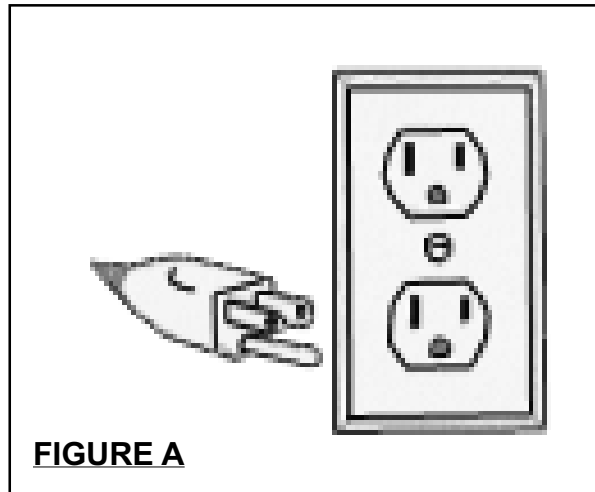
### **WARNING!**

**Improperly connecting the grounding wire can result in the risk of electric shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the power cord plug provided with the tool. Never remove the grounding prong from the plug. Do not use the tool if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.**


### GROUNDED TOOLS: TOOLS WITH THREE PRONG PLUGS

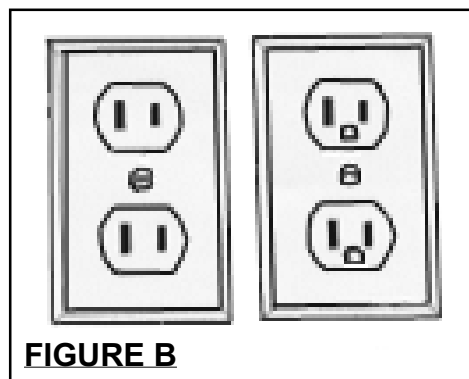
1. Tools marked with “Grounding Required” have a three wire cord and three prong grounding plug. The plug must be connected to a properly grounded outlet. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk of electric shock. **(See Figure A, next page.)**

2. The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool's grounding system and must never be attached to an electrically "live" terminal. **(See Figure A.)**
3. Your tool must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The plug and outlet should look like that in the following illustration. **(See Figure A.)**



**DOUBLE INSULATED TOOLS: TOOLS WITH TWO PRONG PLUGS**

4. Tools marked "Double Insulated"  do not require grounding. They have a special double insulation system which satisfies OSHA requirements and complies with the applicable standards of Underwriters Laboratories, Inc., the Canadian Standard Association, and the National Electrical Code. **(See Figure B.)**
5. Double insulated tools may be used in either of the 120 volt outlets shown in the following illustration. **(See Figure B.)**





## EXTENSION CORDS




1. **Grounded** tools require a three wire extension cord. **Double Insulated** tools can use either a two or three wire extension cord.
2. As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible tool damage. **(See Figure C, next page.)**
3. The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14 gauge cord can carry a higher current than a 16 gauge cord. **(See Figure C.)**
4. When using more than one extension cord to make up the total length, make sure each cord contains at least the minimum wire size required. **(See Figure C.)**
5. If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum cord size. **(See Figure C.)**
6. If you are using an extension cord outdoors, make sure it is marked with the suffix "W-A" ("W" in Canada) to indicate it is acceptable for outdoor use.
7. Make sure your extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified electrician before using it. Protect your extension cords from sharp objects, excessive heat, and damp or wet areas.

<b>RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS*</b> <b>(120 VOLT)</b>					
<b>NAMEPLATE AMPERES (At Full Load)</b>	<b>EXTENSION CORD LENGTH</b>				
	<b>25 Feet</b>	<b>50 Feet</b>	<b>75 Feet</b>	<b>100 Feet</b>	<b>150 Feet</b>
<b>0 – 2.0</b>	<b>18</b>	<b>18</b>	<b>18</b>	<b>18</b>	<b>16</b>
<b>2.1 – 3.4</b>	<b>18</b>	<b>18</b>	<b>18</b>	<b>16</b>	<b>14</b>
<b>3.5 – 5.0</b>	<b>18</b>	<b>18</b>	<b>16</b>	<b>14</b>	<b>12</b>
<b>5.1 – 7.0</b>	<b>18</b>	<b>16</b>	<b>14</b>	<b>12</b>	<b>12</b>
<b>7.1 – 12.0</b>	<b>18</b>	<b>14</b>	<b>12</b>	<b>10</b>	<b>-</b>
<b>12.1 – 16.0</b>	<b>14</b>	<b>12</b>	<b>10</b>	<b>-</b>	<b>-</b>
<b>16.1 – 20.0</b>	<b>12</b>	<b>10</b>	<b>-</b>	<b>-</b>	<b>-</b>

\* Based on limiting the line voltage drop to five volts at 150% of the rated amperes.

**FIGURE C**

## SYMBOLOLOGY


	Double Insulated
	Canadian Standards Association
	Underwriters Laboratories, Inc.
<b>V</b> ~	Volts Alternating Current
<b>A</b>	Amperes
n <sub>o</sub> xxxx/min.	No Load Revolutions per Minute (RPM)

## UNPACKING

When unpacking, check to make sure all the parts shown on the **Parts List on page 15** are included. If any parts are missing or broken, please call Harbor Freight Tools at the number shown on the cover of this manual as soon as possible.

## ASSEMBLY INSTRUCTIONS

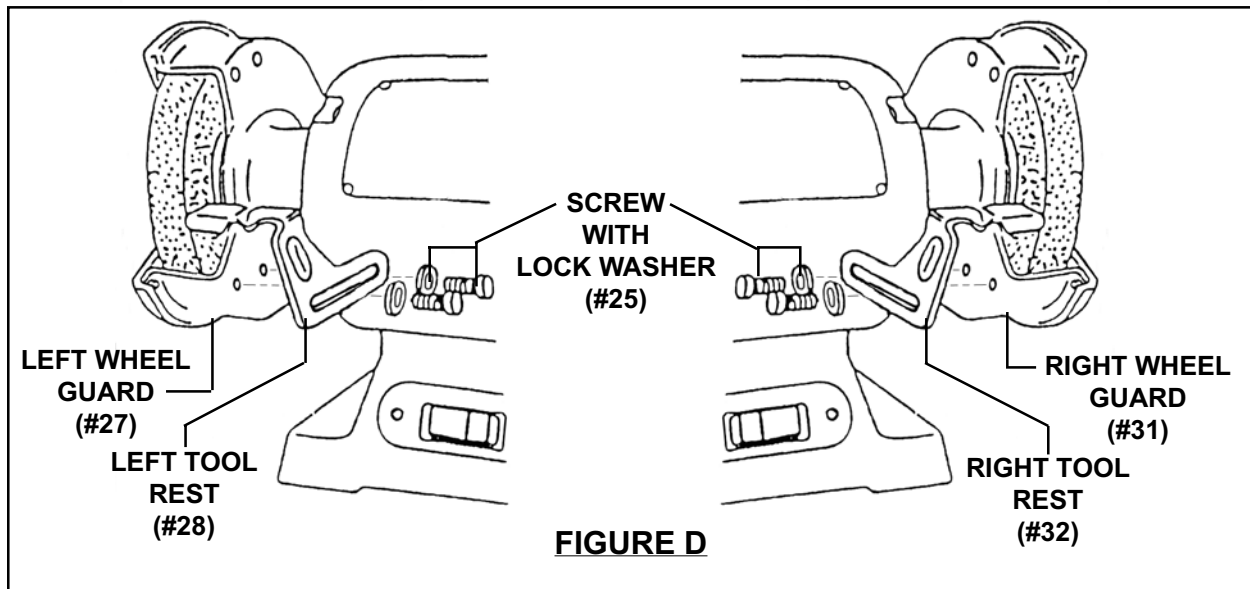
**NOTE:** For additional information regarding the parts listed in the following pages, refer to the **Assembly Diagram on page 16**.

-  **WARNING!** Always make sure the Power Plug (part #10) of the Bench Grinder is unplugged from its electrical outlet *prior* to assembly, adding any accessories, or making any adjustments to the tool.

### ***To Attach The Tool Rests:***

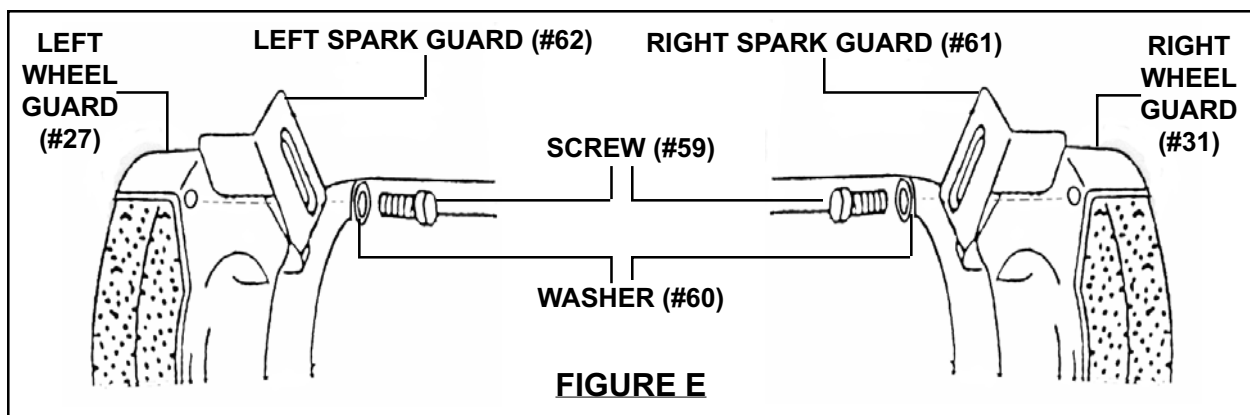
- Align the *mounting slot* in the Left Tool Rest (part #28) with the two *threaded mounting holes* in the Left Wheel Guard (part #27). Insert two Screws with two Lock Washers (part #25) through the mounting slot in the Left Tool Rest, and *loosely* finger tighten the two Screws into the threaded mounting holes in the Left Wheel Guard. **(See Figure D, next page.)**
- Slide the Left Tool Rest (part #28) forward to within **1/16"** of the Grinding Wheel (part #64). Then, firmly tighten the two Screws with Lockwashers (part #25) to secure the Left Tool Rest in place. **(See Figure D.)**

- Repeat Steps #1 and #2 to attach the Right Tool Rest (part #32) to the Right Wheel Guard (part #31). **(See Figure D.)**



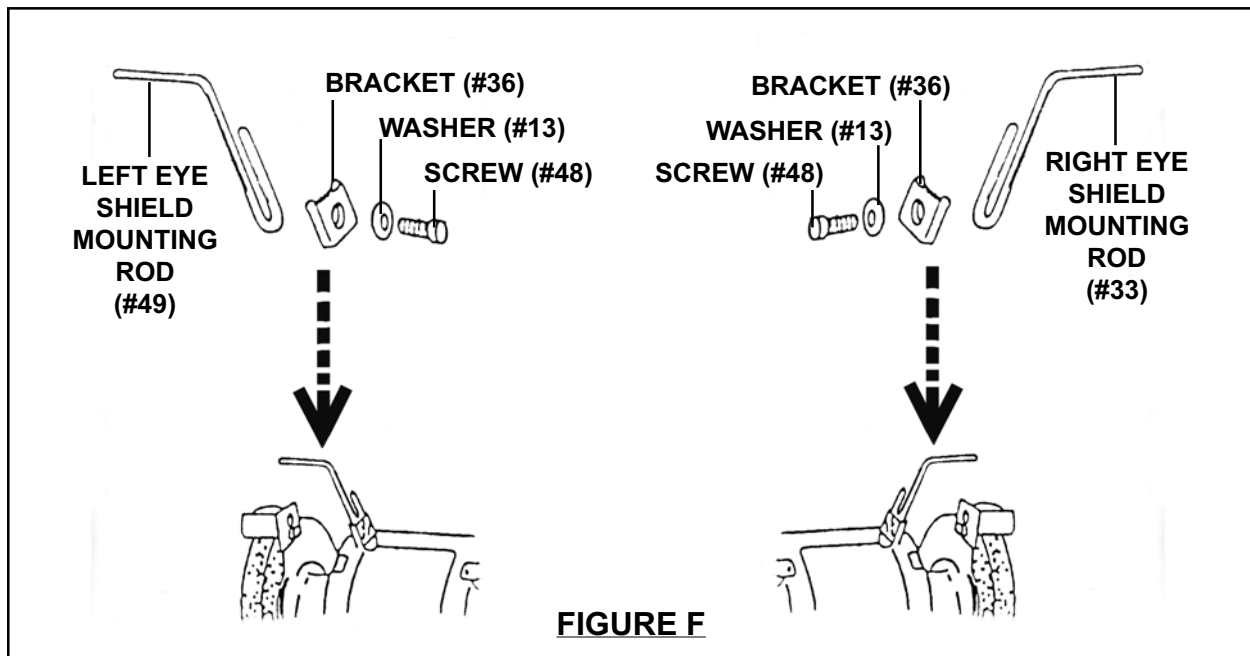
**To Attach The Spark Guards:**

- Align the mounting slot in the Left Spark Guard (part #62) with the threaded mounting hole in the Left Wheel Guard (#27). Insert one Screw (part #59) with one Washer (part #60) through the mounting slot in the Left Spark Guard, and loosely finger tighten the Screw into the threaded mounting hole in the Left Wheel Guard. **(See Figure E.)**
- Slide the Left Spark Guard (part #62) forward to within  $1/16$ " of the Grinding Wheel (part #64). Then, firmly tighten the Screw (part #59) with Washer (part #60) to secure the Left Spark Guard in place. **(See Figure E.)**
- Repeat Steps #1 and #2 to attach the Right Spark Guard (part #61) to the Right Wheel Guard (part #31). **(See Figure E.)**



### **To Attach The Eye Shield Mounting Rods:**


1. Insert one Screw (part #48) with a Washer (part #13) through a Bracket (part #36) and the Left Eye Shield Mounting Rod (part #49). Then, firmly tighten the Screw to secure the Left Eye Shield Mounting Rod to the body of the Bench Grinder. **(See Figure F.)**
2. Repeat Step #1 to attach the Right Eye Shield Mounting Rod (part #33) to the body of the Bench Grinder. **(See Figure F.)**

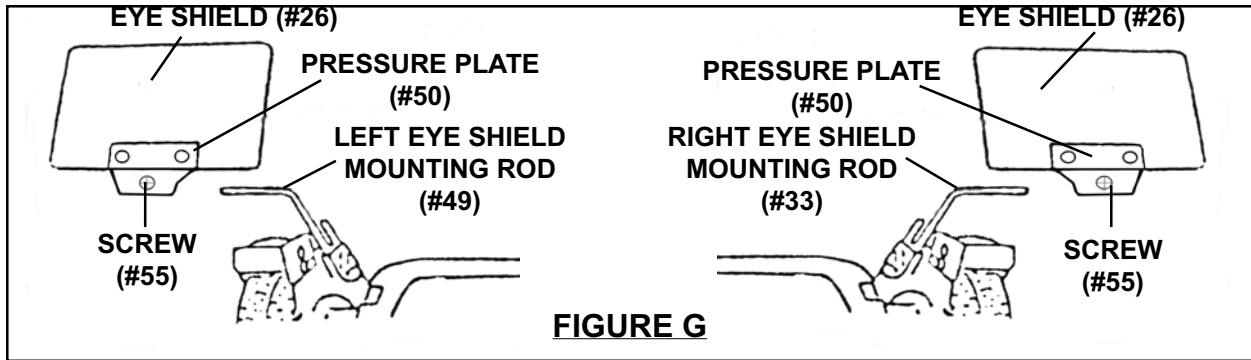


### **To Attach The Eye Shields:**

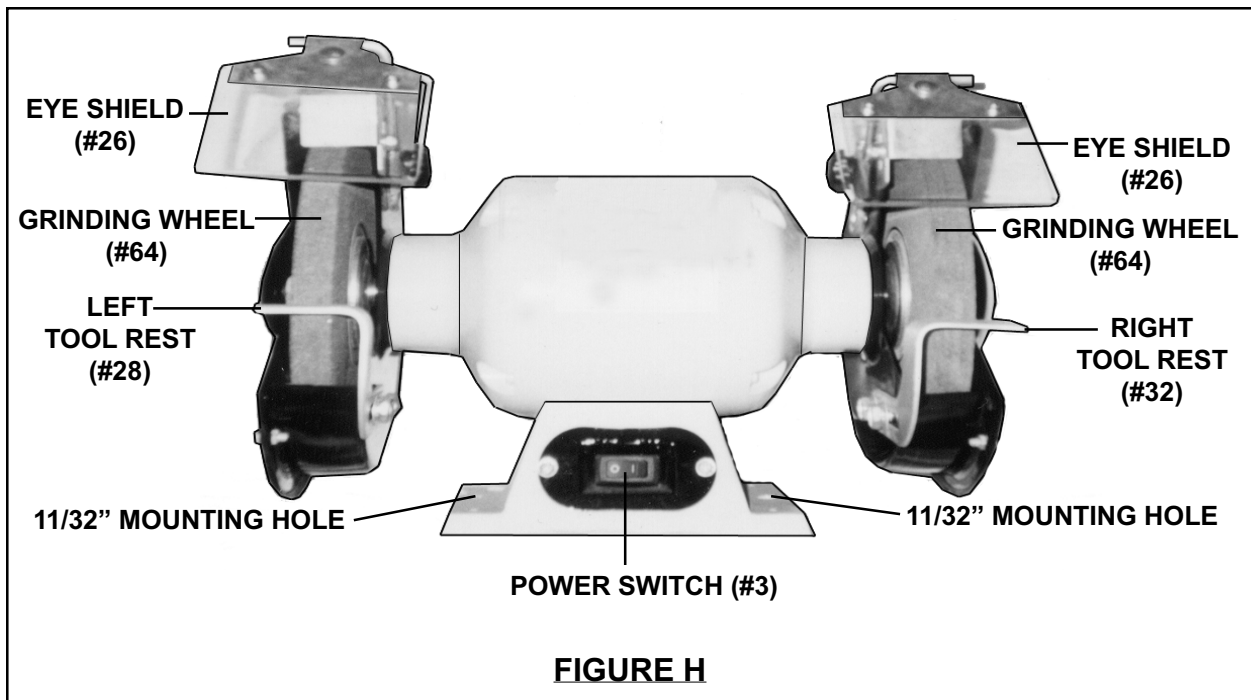
1. Loosen the Screw (part #55) on the Pressure Plate (part #50). Slide the Pressure Plate onto the Left Eye Shield Mounting Rod (part #49). Then, re-tighten the Screw so that the Eye Shield (part #26) can be moved up or down but will be tight enough to stay in place. **(See Figure G, next page.)**
2. Repeat Step #1 to attach the remaining Eye Shield to the Right Eye Shield Mounting Rod (part #33). **(See Figure G.)**

### **To Mount The Bench Grinder On A Workbench:**

1.  **WARNING!** Make sure the workbench (not included) to which the Bench Grinder will be mounted is flat, level, and sturdy enough to bear the weight of the Bench Grinder and other tools and materials being used.




2. There are two 11/32" diameter mounting holes located on the Base (part #15) of the Bench Grinder. **(See Figure H.)**
3. Temporarily set the Bench Grinder in the desired location on the workbench. Use the two 11/32" diameter mounting holes on the Bench Grinder as templates to mark where two 11/32" diameter holes will be drilled through the top of the workbench. Once marked, remove the Bench Grinder.
4. Where previously marked, drill the two 11/32" holes through the top of the workbench.
5. Set the Bench Grinder back on the workbench, and align the two mounting holes on the Bench Grinder with the two previously drilled holes in the workbench. Then secure the Bench Grinder to the workbench, using two 11/32" diameter Bolts of appropriate length, two Lock Washers, and two Nuts (none included).



## OPERATING INSTRUCTIONS

1. **WARNING!** Prior to using the Bench Grinder, make sure to wear ANSI approved safety glasses, full face safety impact shield, and heavy duty work gloves. Also, always adjust the two Eye Shields (part #26) directly in line between your eyes and the object being ground. **(See Figure H.)** Always keep wheel covers in place when using the Bench Grinder.
2. Plug the Power Cord Plug (part #10) into the nearest grounded, 120 volt, electrical outlet. Then, turn the Power Switch (part #3) to its “**ON**” position and allow the Grinding Wheels (part #64) to spin up to full speed. **(See Figure H.)**
3. Hold the workpiece being ground with both hands, taking care to keep fingers and hands away from the spinning Grinding Wheels (part #64). **(See Figure H.)**
4. Place the workpiece on the Left or Right Tool Rest (parts #28, #32), applying moderate pressure on the workpiece and keeping it moving to the left and right at an even pace for smooth grinding. **NOTE:** Feeding the workpiece too hard into the Grinding Wheel (part #64) can overheat the Motor and prematurely wear down the Grinding Wheel. **(See Figure H.)**
5. **IMPORTANT:** Keep a tray nearby filled with water, and dip the workpiece into the water regularly to prevent overheating. Overheating can weaken metals.
6. Once the grinding job is completed, turn the Power Switch (part #3) to its “**OFF**” position and allow the Grinding Wheels (part #64) to stop on their own. Unplug the Bench Grinder when it is not in use. **(See Figure H.)**
7. Place the workpiece in the tray of water and allow the workpiece to completely cool before handling.

## INSPECTION, MAINTENANCE, AND CLEANING

1.  **WARNING!** Make sure the Power Switch (part #3) of the Bench Grinder is in its “**OFF**” position and that the tool is unplugged from its electrical outlet before performing any inspection, maintenance, or cleaning procedures.
2. **BEFORE EACH USE**, inspect the general condition of the Bench Grinder. Check for loose screws, misalignment or binding of moving parts, damaged electrical wiring, cracked, chipped, or damaged Grinding Wheels (part #64), and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, have the problem corrected before further use.  
**Do not use damaged equipment.**

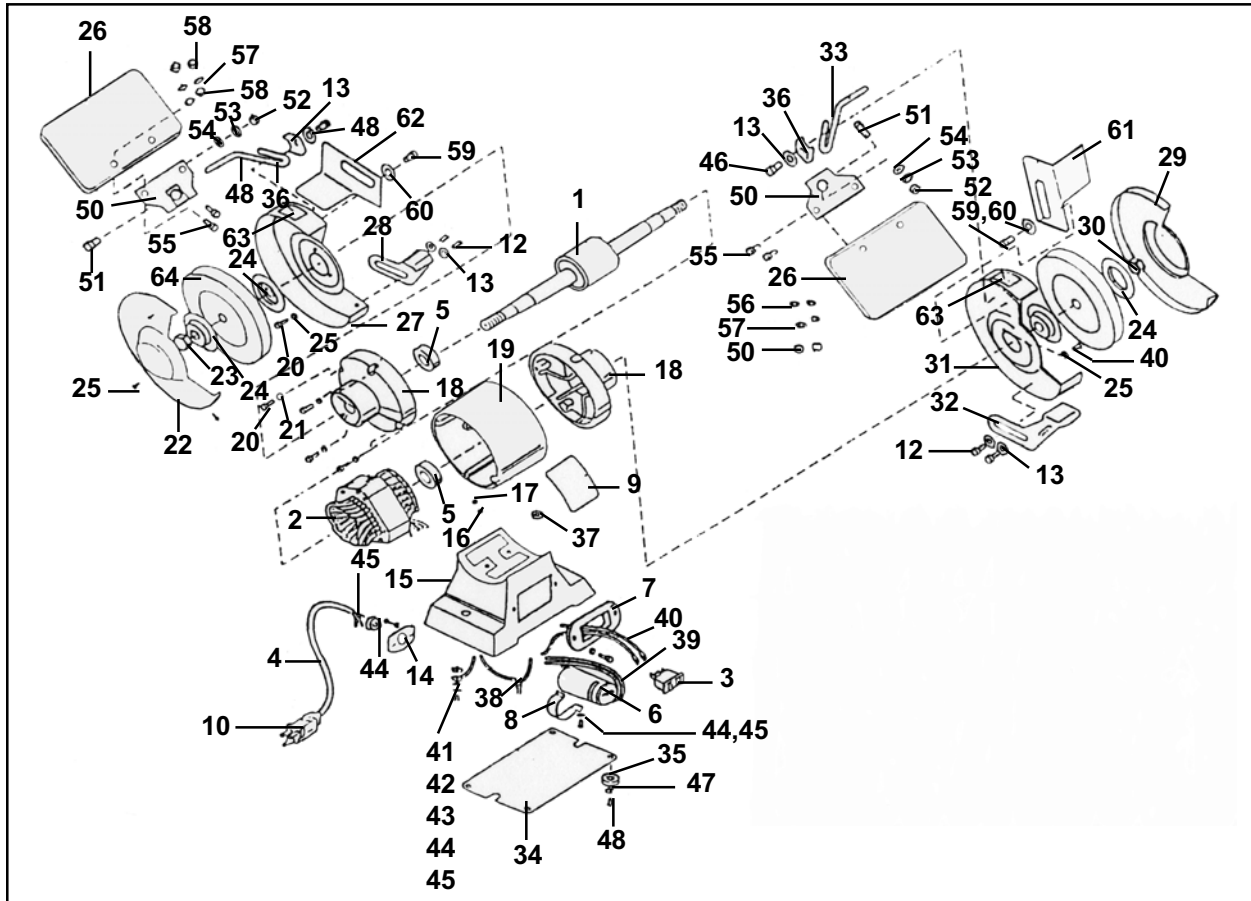
3. **TO CLEAN:** Use vacuum or a clean cloth and mild detergent to clean the body of the Bench Grinder. Do not use solvents. Do not immerse any part of the tool in liquid.

## PARTS LIST

Part #	Description	Qty.	Part #	Description	Qty.
1	Rotor	1	33	Right Eye Shield Mounting Rod	1
2	Stator	1	34	Base Plate	1
3	Power Switch	1	35	Rubber Foot	4
4	Power Cord	2	36	Bracket	2
5	Bearing	2	37	Bushing	1
6	Capacitor	1	38	Wire Nut	3
7	Switch Plate	1	39	Terminal, Capacitor	2
8	Capacitor Clip	1	40	Terminal, Switch	2
9	Nameplate	1	41	Ground Clamp	1
10	Power Plug	1	42	Ground Terminal	1
11	Cord Bushing	1	43	Flat Washer	1
12	Screw	4	44	Lock Washer	1
13	Washer	4	45	Screw	3
14	Cord Bushing Plate	1	46	Screw	2
15	Base	1	47	Flat Washer	4
16	Screw	4	48	Screw, Foot	4
17	Lock Washer	1	49	Left Eye Shield Mounting Rod	1
18	End Bell	2	50	Pressure Plate	2
19	Stator Housing	1	51	Screw	4
20	Screw, End Bell	8	52	Nut	4
21	Lock Washer	8	53	Lock Washer	2
22	Left Wheel Cover	1	54	Washer	2
23	Left Hand Clamp Nut	1	55	Screw	2
24	Clamp Washer	4	56	Washer	4
25	Screw, Lock Washer	6	57	Lock Washer	4
26	Eye Shield	2	58	Nut	2
27	Left Wheel Guard	1	59	Screw	4
28	Left Tool Rest	1	60	Washer	4
29	Right Wheel Cover	1	61	Right Spark Guard	1
30	Right Hand Clamp Nut	1	62	Left Spark Guard	1
31	Right Wheel Guard	1	63	Rotation Label	2
32	Right Tool Rest	1	64	Grinding Wheel	2

**NOTE:** Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

## ASSEMBLY DIAGRAM



**NOTE:** Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

## PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.